

# *Psd3* Cas9-KO Strategy

**Designer:**

**Reviewer:**

**Design Date:**

# Project Overview

**Project Name**

*Psd3*

**Project type**

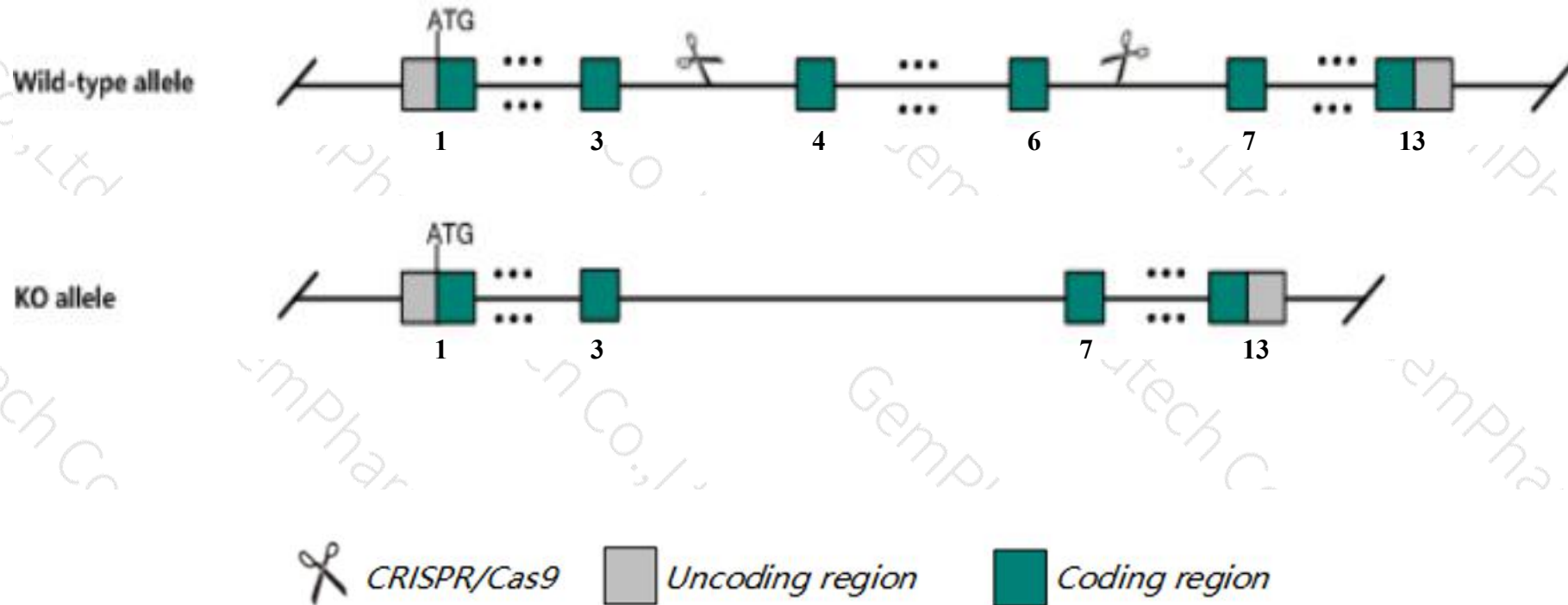
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Psd3* gene. The schematic diagram is as follows:



- The *Psd3* gene has 15 transcripts. According to the structure of *Psd3* gene, exon4-exon6 of *Psd3*-203(ENSMUST00000093468.11) transcript is recommended as the knockout region. The region contains 262bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Psd3* gene. The brief process is as follows: CRISPR/Cas9 system were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The *Psd3* gene is located on the Chr8. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- The effect of this strategy on transcript *Psd3*-202,206,211 is unknown.
- This strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.



# Gene information (NCBI)

## Psd3 pleckstrin and Sec7 domain containing 3 [Mus musculus (house mouse)]

Gene ID: 234353, updated on 13-Mar-2020

### Summary



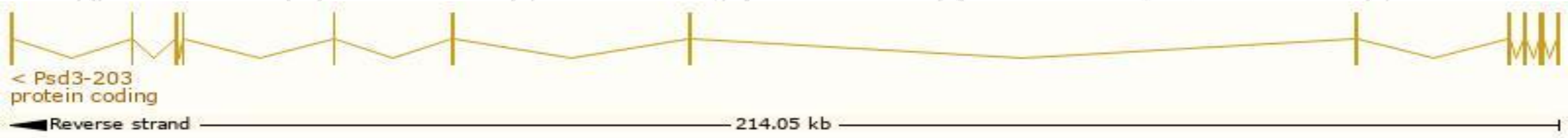
<b>Official Symbol</b>	Psd3 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	pleckstrin and Sec7 domain containing 3 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1918215</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000030465</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	4931420C21Rik, AI661273, BC003498, D430018P08, EFA6D
<b>Expression</b>	Broad expression in cortex adult (RPKM 13.0), frontal lobe adult (RPKM 12.7) and 15 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

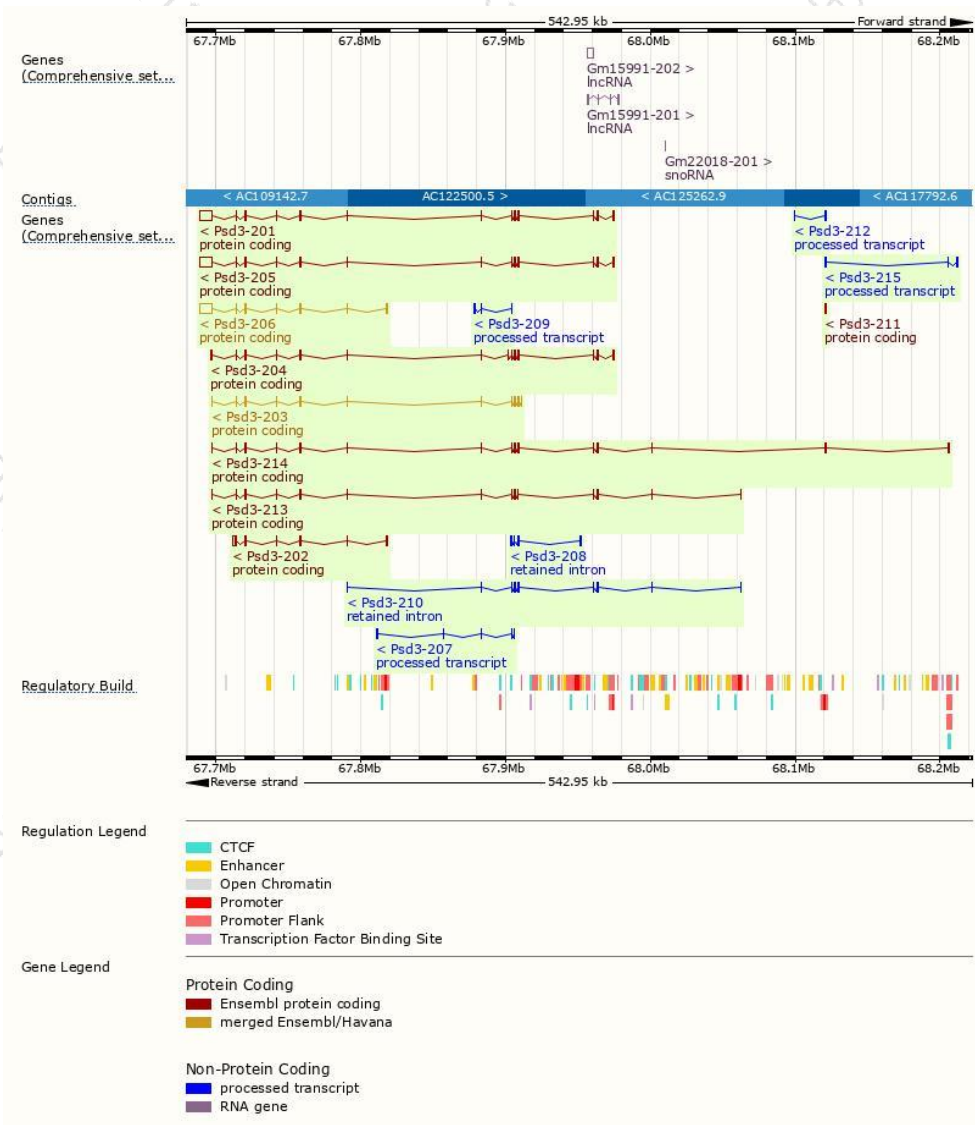
The gene has 15 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Psd3-205	<a href="#">ENSMUST00000098696.9</a>	11316	<a href="#">1004aa</a>	Protein coding	<a href="#">CCDS40355</a>	<a href="#">Q2PFD7</a>	TSL:1 GENCODE basic APPRIS ALT2
Psd3-206	<a href="#">ENSMUST00000120071.7</a>	9203	<a href="#">376aa</a>	Protein coding	<a href="#">CCDS52563</a>	<a href="#">E9PUC5</a>	TSL:1 GENCODE basic
Psd3-203	<a href="#">ENSMUST00000093468.11</a>	1739	<a href="#">518aa</a>	Protein coding	<a href="#">CCDS22340</a>	<a href="#">Q2PFD7</a>	TSL:1 GENCODE basic APPRIS P3
Psd3-201	<a href="#">ENSMUST00000038959.15</a>	11319	<a href="#">1005aa</a>	Protein coding	-	<a href="#">F6Z9E6</a>	TSL:5 GENCODE basic APPRIS ALT2
Psd3-214	<a href="#">ENSMUST00000212960.1</a>	4562	<a href="#">1289aa</a>	Protein coding	-	<a href="#">A0A1D5RMH7</a>	TSL:5 GENCODE basic APPRIS ALT2
Psd3-204	<a href="#">ENSMUST00000093469.10</a>	4351	<a href="#">1004aa</a>	Protein coding	-	<a href="#">Q2PFD7</a>	TSL:5 GENCODE basic APPRIS ALT2
Psd3-213	<a href="#">ENSMUST00000212505.1</a>	3253	<a href="#">1035aa</a>	Protein coding	-	<a href="#">A0A1D5RLK2</a>	TSL:5 GENCODE basic APPRIS ALT2
Psd3-202	<a href="#">ENSMUST00000059374.4</a>	2876	<a href="#">390aa</a>	Protein coding	-	<a href="#">Q8C0E9</a>	TSL:1 GENCODE basic
Psd3-211	<a href="#">ENSMUST00000178529.1</a>	828	<a href="#">276aa</a>	Protein coding	-	<a href="#">A0A1D5RLM2</a>	TSL:5 GENCODE basic
Psd3-215	<a href="#">ENSMUST00000212994.1</a>	1471	No protein	Processed transcript	-	-	TSL:5
Psd3-212	<a href="#">ENSMUST00000185416.2</a>	673	No protein	Processed transcript	-	-	TSL:3
Psd3-207	<a href="#">ENSMUST00000130307.2</a>	524	No protein	Processed transcript	-	-	TSL:3
Psd3-209	<a href="#">ENSMUST00000146480.1</a>	429	No protein	Processed transcript	-	-	TSL:5
Psd3-210	<a href="#">ENSMUST00000150169.7</a>	2733	No protein	Retained intron	-	-	TSL:1
Psd3-208	<a href="#">ENSMUST00000145595.1</a>	1049	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Psd3-203* transcript,the transcription is shown below:



# Genomic location distribution

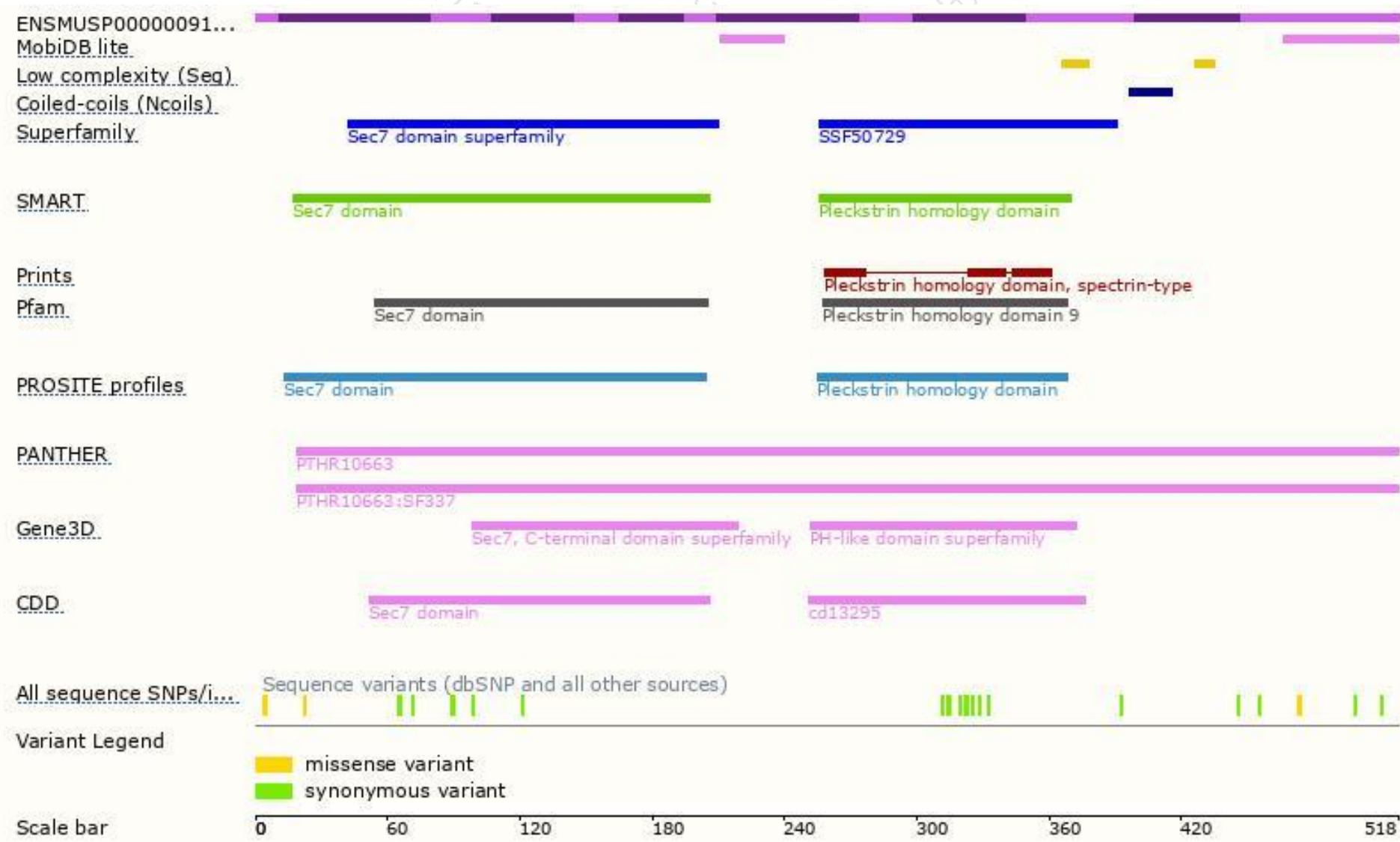




# Protein domain



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If you have any questions, you are welcome to inquire.

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